

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
15 July 2004 (15.07.2004)

PCT

(10) International Publication Number
WO 2004/059606 A3

(51) International Patent Classification⁷: **G09G 3/22**

(21) International Application Number:
PCT/IB2003/006068

(22) International Filing Date:
10 December 2003 (10.12.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
02080582.6 30 December 2002 (30.12.2002) EP

(71) Applicant (for all designated States except US): **KONINKLIJKE PHILIPS ELECTRONICS N.V.** [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **DE BRUIN, Dirk** [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). **VAN WOUDEBERG, Roel** [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

(74) Agent: **DEGUELLE, Wilhelmus, H., G.**; Philips Intellectual Property & Standards, Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

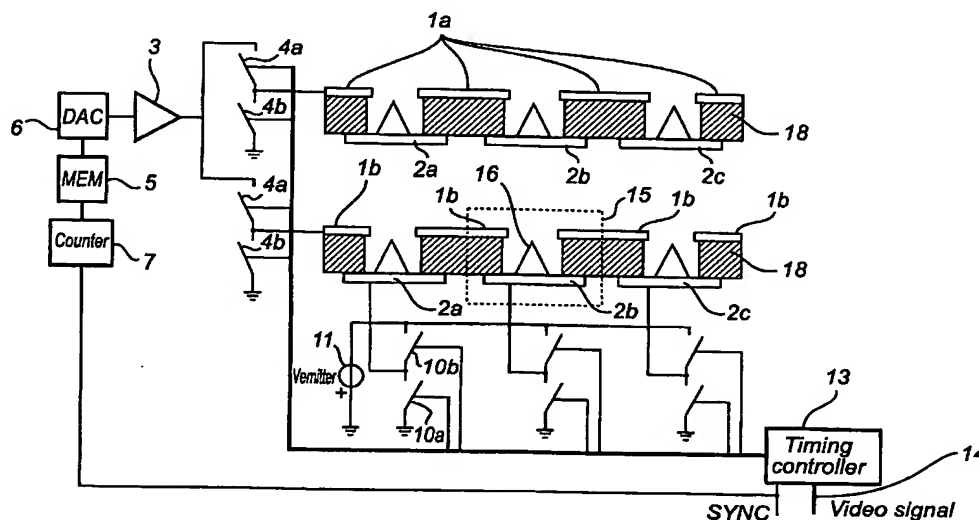
Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
10 September 2004

[Continued on next page]

(54) Title: LINE-AT-A-TIME ADDRESSED DISPLAY AND DRIVE METHOD



(57) Abstract: A display device having a set of non-pixel-selective electrodes (1a, 1b) and a set of pixel-selective electrodes (2a, 2b, 2c), so that pixels (15) are defined by intersections of said electrodes. The display further comprises means (3, 4a, 4b, 5, 6, 7) for applying an amplitude modulated (AM) signal to a non-pixel-selective electrode (1a, 1b), and means (10a, 10b, 11, 13) for applying a pulse width modulated (PWM) signal to a pixel-selective electrode (2a, 2b, 2c). The voltage difference between the electrodes defines the light intensity which can be emitted, and the available intensity varies in time according to the AM signal. The width of the pulse on the pixel-selective electrode represents the duration of light emission, and thus the gray level of the corresponding pixel. The combination of the two generates an exponentially distributed emitted light intensity, enabling gamma correction.

WO 2004/059606 A3



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB 03/06068

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G09G3/22

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G09G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 005 012 A (PIXTECH SA) 31 May 2000 (2000-05-31) paragraph '0034! - paragraph '0039!; figure 5	1-11
X	EP 0 381 479 A (SHARP KK) 8 August 1990 (1990-08-08) column 13, line 5 - column 15, line 9; figures 14-16	1-11

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

22 June 2004

Date of mailing of the international search report

01/07/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Amian, D

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB 03/06068

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 1005012	A	31-05-2000	FR 2786597 A1	02-06-2000
			EP 1005012 A1	31-05-2000
			JP 2000163006 A	16-06-2000
EP 0381479	A	08-08-1990	JP 2203387 A	13-08-1990
			JP 2620585 B2	18-06-1997
			DE 69013526 D1	01-12-1994
			DE 69013526 T2	04-05-1995
			EP 0381479 A1	08-08-1990